

Fig. 1A

Example Direct Shipping Cost Database (cost per 5 lbs.)

	112a Distribution Center ("DC") 1	112b DC 2	112c DC 3	112d DC N
111a <b>0-5 miles, courier</b>	\$10.00	-	-	
111b <b>0-150 miles, domestic ground</b>	\$2.25	\$2.00	\$2.00	\$2.00
111c <b>150-1000 miles, domestic ground</b>	\$3.00	\$2.50	\$2.50	\$3.00
111d <b>1000-2500 miles, domestic ground</b>	\$4.00	\$3.50	\$3.50	\$4.50
111e <b>2500+ miles, domestic ground</b>	\$5.00	\$4.50	\$4.50	\$6.00
111f <b>0-3000 miles, domestic next day air</b>	\$8.50	\$8.50	\$8.50	\$8.00
111g <b>3000+ miles, domestic next day air</b>	\$12.00	\$12.00	\$12.00	\$11.00
111h <b>0-3000 miles, foreign air</b>	-	\$19.00	\$19.00	\$20.00
	⋮			

**Figure 1B**

Example Direct Labor Cost Database

	116a DC 1, Processing Lane 1	116b DC 1, Processing Lane 2	116c DC 2, Processing Lane 1	116d DC N, Processing Lane M
115a <b>Order Type 1</b>	\$0.50	\$0.50	\$0.75	-
115b <b>Order Type 2</b>	-	\$0.75	\$0.75	-
115c <b>Order Type 3</b>	\$1.00	-	\$0.75	-
	⋮			
115d <b>Giftwrapping</b>	-	\$2.00	-	\$2.00
	⋮			

**Figure 1C**

Example Direct Packing Material Cost Database

	120a DC 1	120b DC 2	120c DC N
119a <b>Order Type 1</b>	\$0.50	\$0.50	\$0.50
119b <b>Order Type 2</b>	\$0.20	\$0.25	-
	⋮		

**Figure 1D**

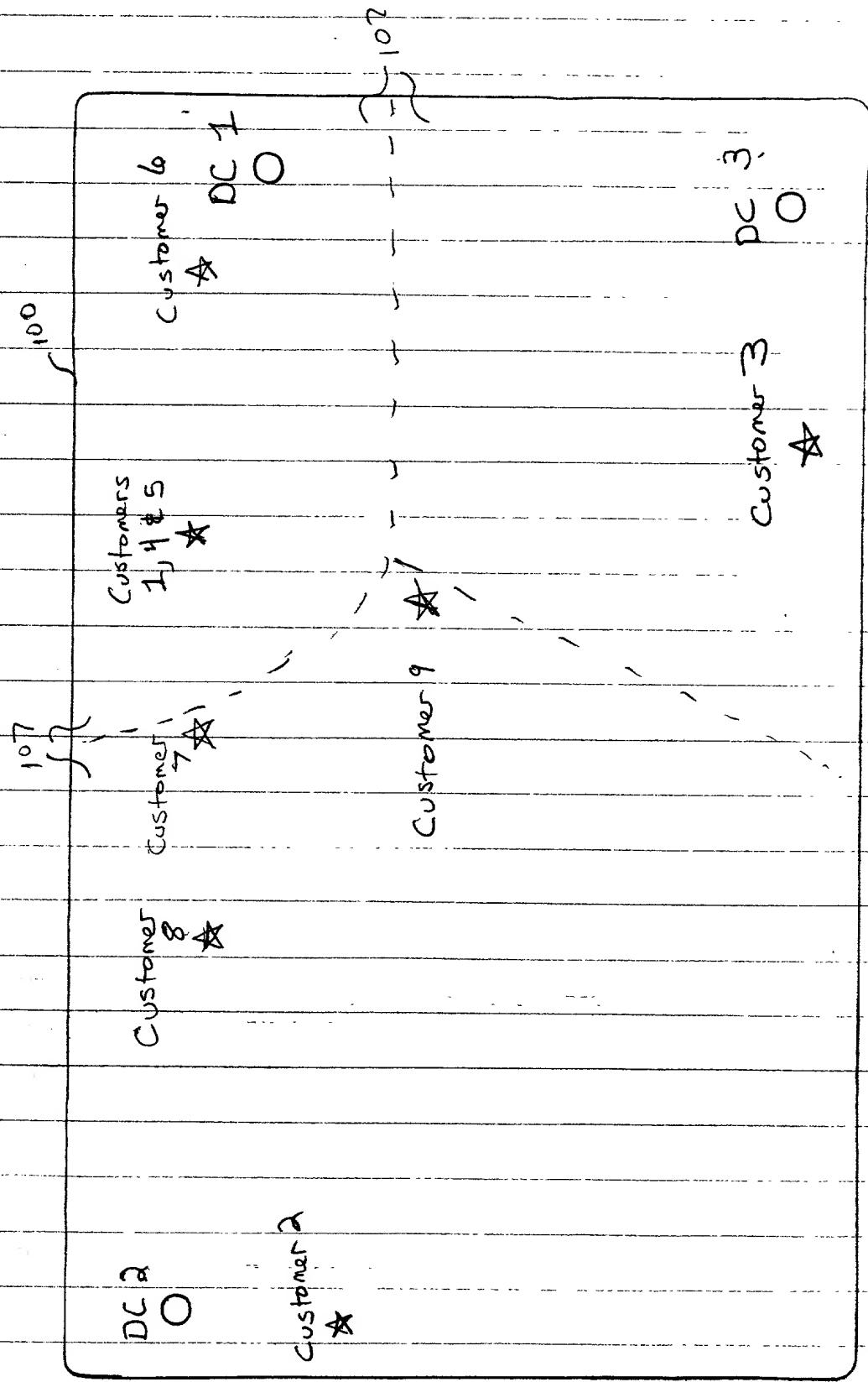


Fig. 7E

Example Estimated Customer Goodwill Cost From Expected Delivery Date Deviation Database

	124a	124b	124c	
	Customer 1	Customer 2	Customer 3	
	⋮			
123a	<b>1 day early</b>	\$-5.00	-	\$-1.00
123b	<b>on-time</b>	-	-	\$-0.50
123c	<b>1 day late</b>	\$2.00	\$2.00	\$1.00
123d	<b>2 days late</b>	\$5.00	\$2.50	\$1.00
123e	<b>3 days late</b>	\$10.00	\$3.00	\$2.00
123f	<b>4 days late</b>	\$25.00	\$5.00	\$1.75
	⋮			

*Figure 1F*

Example Estimated Customer Goodwill Cost From Expected Order Split Deviation Database

	128a	128b	128c	
	Customer 1	Customer 2	Customer 3	
	⋮			
127a	<b>1 less order split</b>	\$-2.50	-	\$-0.25
127b	<b>expected # of order splits</b>	-	-	\$-0.10
127c	<b>1 more order split</b>	\$0.50	\$0.50	\$0.25
127d	<b>2 more order splits</b>	\$1.25	\$0.65	\$0.25
127e	<b>3 more order splits</b>	\$2.50	\$0.75	\$0.50
127f	<b>4 more order splits</b>	\$6.25	\$1.25	\$0.40
	⋮			

*Figure 1G*

Example New Order Optimal Allocation Database

	132a	132b	132c	132d
	DC 1, Processing Lane 1	DC 1, Processing Lane 2	DC 2, Processing Lane 1	DC N, Processing Lane M
	⋮			
131a	7am-8am EST Order Type 1	25	15	60
131b	7am-8am EST Order Type 2	-	30	10
	⋮			
161c	8am-9am EST Order Type 1	25	25	50
161d	8am-9am EST Order Type 2	-	30	20
	⋮			

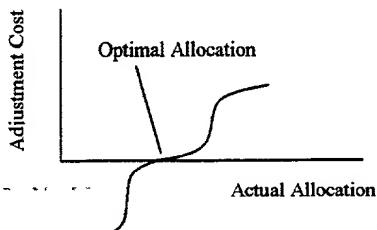
**Figure 1H**

Example New Order Actual Allocation Differential

	136a	136b	136c	136d
	DC 1, Processing Lane 1	DC 1, Processing Lane 2	DC 2, Processing Lane 1	DC N, Processing Lane M
	⋮			
135a	7am-8am EST Order Type 1	-	+30	-5
135b	7am-8am EST Order Type 2	-	+5	-5
	⋮			

**Figure 1I**

Example New Order Allocation Adjustment Formula



**Figure 1J**

Example Order Fulfillment Plan Option Comparison (for order by Customer 1 of Type 2 with 2 items)

	<i>I40a</i>	<i>I40b</i>	<i>I40c</i>	<i>I40d</i>	<i>I40e</i>	<i>I40f</i>	<i>I40g</i>
	Direct Shipping Cost	Direct Labor Cost	Direct Packing Material Cost	Delivery Date Customer Goodwill Cost	Order Split Customer Goodwill Cost	Allocation Adjustment Cost	Total Cost
<i>I39a</i>	both items from DC 1, Processing Lane 2; standard shipping	\$3.00	\$0.75	\$0.20	-	\$0.25	\$4.20
<i>I39b</i>	both items from DC 2, Processing Lane 1; standard shipping	\$3.50	\$0.75	\$0.25	-	-\$1.00	\$3.50
<i>I39c</i>	item 1 from DC 1, Processing Lane 2; and item 2 from DC 2, Processing Lane 1; standard shipping	\$6.50	\$1.50	\$0.45	-	\$0.50	-\$0.35
							\$8.60
<i>I39d</i>	both items from DC 1, Processing Lane 2; Next Day Air shipping	\$8.50	\$0.75	\$0.20	-\$5.00	-	\$0.25
							\$4.70
							:

*Figure 1K*

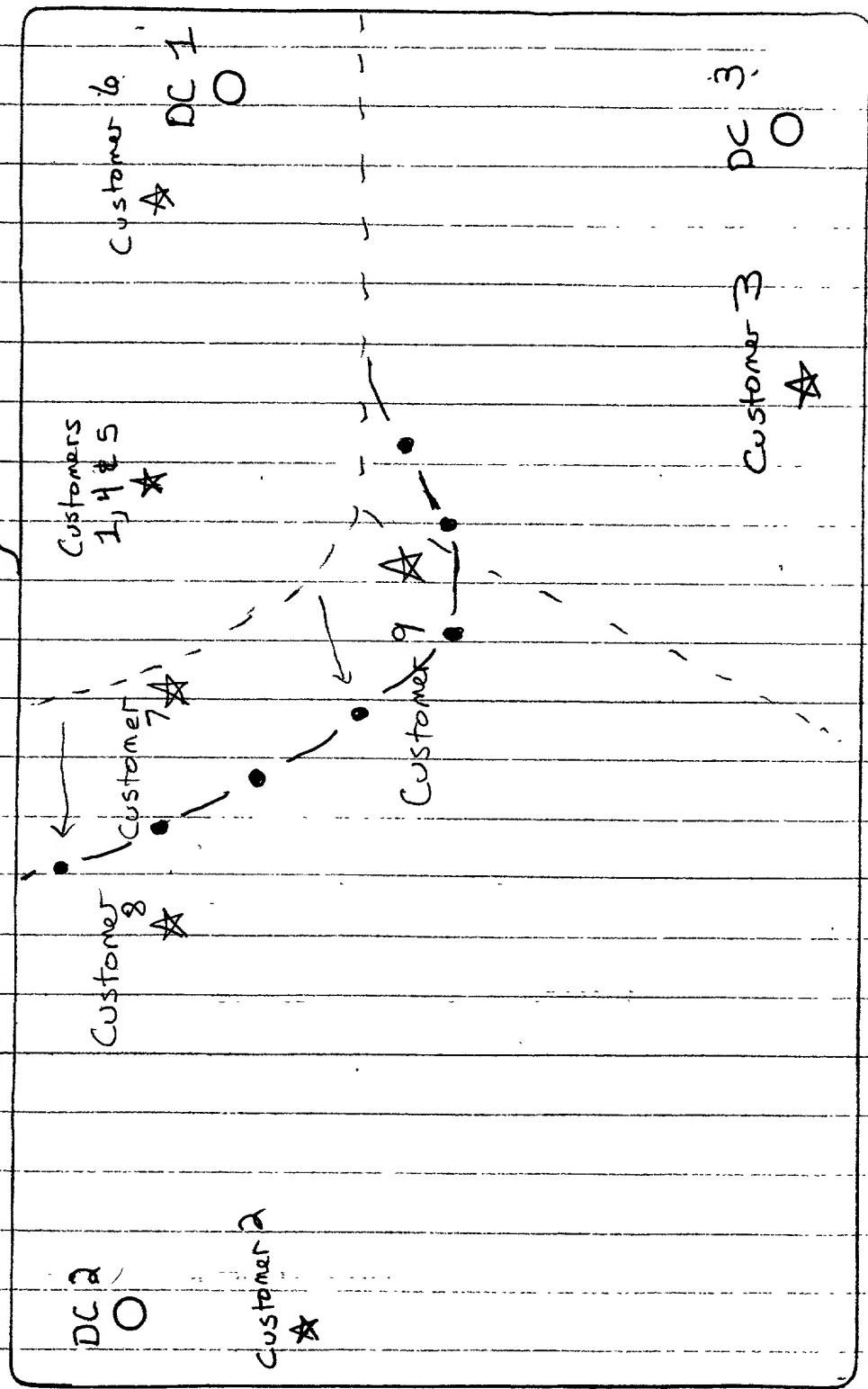


Fig. 1L

WELCOME

JAMES'S  
STORE

BOOKS

ELECTRONICS

MUSIC

DVD

KITCHEN &  
HOUSEWARESHEALTH  
& BEAUTYSEE MORE  
STORESADVANCED  
SEARCHBROWSE  
GENRESTOP  
SELLERSNEW & FUTURE  
RELEASESBUILD YOUR  
COLLECTIONIN  
THEATERSBARGAIN  
OUTLETUSED  
DVDS

SEARCH

DVD

GO!

## ~205 Kenny Loggins Alive (1981)



**List Price: \$24.98**  
**Our Price: \$21.49**  
**You Save: \$3.49 (14%)**

~210  
Actual Delivery Time:

- IF standard shipping is used, this item will be delivered to you on 09/08/XX.
- IF Next Day Air shipping is used, this item will be delivered to you on 09/04/XX.

## DVD INFORMATION

## Explore This DVD

buying infotechnical  
informationeditorial reviewsrate this itemSee more by the  
cast & directorsKenny LogginsShare your  
thoughtswrite a reviewe-mail a friend  
about this DVDVisit the Music  
StoreA Day Without Rain  
~ Enya

DVD

Rated: NR

## BUY &amp; SELL USED ITEMS

Get it for less! [Order it used](#)I have one to sell! [Sell yours here](#)

## Ship to:

 Work - Std Shipping

Add gift wrap or note  
[Review or change your  
1-Click addresses](#)

Add to Wish List

(We'll set one up for you)

[View my Wish List](#)

## Edition Details:

- Region 1 encoding (US and Canada only)
- Color
- Track Listing: 1. All Alone Tonight, 2. I Believe In Love, 3. Love Has Come Of Age, 4. Lady Luck, 5. Angry Eyes, 6. I'm Alright, 7. House Of Pooh Corner, 8. Danny's Song, 9. Junkanoo Holiday, 10. Celebrate Me Home, 11. Mr. Night, 12. This Is It, 13. Keep The Fire
- ASIN: 6304922051 [Click here for more technical details about this edition...](#)

Amazon.com Sales Rank: 3,670

Customer 1, [rate this item](#) to get personal recommendations.

**HUGE Deals!**  
 Find [hot prices and  
special offers](#)

Be the first person to review this DVD!

Fig. 2A



## ~205 Kenny Loggins Alive (1981)

SEARCH  DVD

## DVD INFORMATION

## Explore This DVD

[buying info](#)[technical information](#)[editorial reviews](#)[rate this item](#)

## See more by the cast &amp; directors

[Kenny Loggins](#)

## Share your thoughts

[write a review](#)[e-mail a friend about this DVD](#)

## Visit the Music Store



A Day Without Rain

~ Enya

Customer 1, [rate this item](#) to get personal recommendations.

**HUGE Deals!**  
 Find [hot prices and special offers](#)



List Price: \$24.98

Our Price: \$21.49

You Save: \$3.49 (14%)

218

## Actual Delivery Information

IF default ordering is used, this item will be shipped from the Seattle distribution center on 09/03/XX and will be received by you on 09/08/XX, with a total cost of \$27.19.

## BUY &amp; SELL USED ITEMS

Get it for less! [Order it used](#)I have one to sell! [Sell yours here](#)

## Edition Details:

- Region 1 encoding (US and Canada only)
- Color
- Track Listing: 1. All Alone Tonight, 2. I Believe In Love, 3. Love Has Come Of Age, 4. Lady Luck, 5. Angry Eyes, 6. I'm Alright, 7. House Of Pooh Corner, 8. Danny's Song, 9. Junkanoo Holiday, 10. Celebrate Me Home, 11. Mr. Night, 12. This Is It, 13. Keep The Fire
- ASIN: 6304922051 [Click here for more technical details about this edition...](#)

Amazon.com Sales Rank: 3,670

[Add to Shopping Cart](#)  
 (you can always remove it later)

(Use if you're redeeming a promotional certificate or coupon.)

[Buy now with 1-Click\\*](#)  
 (you can always cancel it later)

Ship to: 215

Work - Std Shipping

Work - Std Shipping - 09/08/XX —

Work - Express Air - 09/04/XX +\$5.50

Home - Std Shipping - 09/07/XX -\$0.50

215a  
215b  
215c

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

:

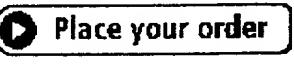
:

**Please review and submit your order**

By placing your order, you agree to Amazon.com's privacy notice and conditions of use.

**Important Message**

We've changed our checkout process! You'll get all the same features, but fewer pages to view before placing your order. Your default shipping address and other settings are shown below. Use the buttons to make any changes; when you're done, click the "Place your order" button.

Click the "Place your order" button to complete your purchase. 

**Shipping to:** 

Customer 1  
Work  
123 Main St.  
Seattle, WA 98101

**Shipping Options:** [Learn more about shipping prices and policies](#)

- Standard Shipping From the Seattle DC  
(09/08/XX - \$3.50)
- Next Day Air (09/04/XX - \$8.50)
- Standard Shipping + Enhanced Priority Processing (09/07/XX - \$5.50)
- ⋮
- Next Day Air + Immediate Processing  
(09/03/XX at 10:30am - \$16.50)
- Standard Shipping from the Atlanta DC  
(09/08/XX - \$3.85)
- ⋮
- Standard Shipping from the Disadvantaged Youth Processing Lane (09/07/XX - \$4.50 + \$1.50)

**Kenny Loggins Alive** Kenny Loggins (Primary Contributor)

**\$21.49** - Quantity : 1 Usually ships in 2-3 days

**Gift Options:** None 

**Order Summary**

Items:	\$21.49	225
Shipping & Handling:	\$3.50	235
Total Before Tax:	\$24.99	
Tax:	\$2.30	
<b>Order Total: \$27.19</b>		

Have a gift certificate or promotional code?  
Enter code here:

[Learn more about gift certificates](#)

**Payment Method:**



MasterCard: \*\*\*-12345  
Exp: 12/2003

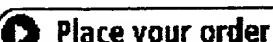


Fig. 2C

Your Account > Order History > Order Summary #104-1234567**Order Placed:** Sept. 21, 20XX at 02:45 PM PDT**Order Total:** \$ 27.19**When will your items arrive?**

**Not Yet Shipped:** Item 1 will arrive at the Seattle DC from external inventory storage by 5pm on 09/02/XX, and will be behind approximately 100 orders in a queue of orders ready for processing by Processing Lane 3. Order processing will begin at approximately 8am on 09/03/XX and will be completed by 8:30am on 09/03/XX. The order will be shipped from the DC at approximately 10am on 09/03/XX by ABC Shipping.

**Delivery Time:** 09/08/XX

<b>Shipping Address:</b> <a href="#">Change</a>	<b>Items Ordered</b>	<b>Price</b>
Customer 1 Work 123 Main St. Seattle, WA 98101	1 of: <b>Kenny Loggins Alive</b> Kenny Loggins	\$21.49

- Availability: 1 in stock  
 - Gift-wrap and note: None [Change](#)

**Shipping Method:** [Change](#)  
Standard Shipping

**Shipping Option:** One  
shipment when complete  
order is ready.

Item(s) Subtotal: \$21.49  
Shipping & Handling: \$3.50

Total Before Tax: \$24.99  
Estimated Tax: \$2.20

**Grand Total for This Order: \$ 27.19**

Fig. 2D



SEARCH

DVD

GO!

## DVD INFORMATION

## Explore This DVD

[buying info](#)[technical information](#)[editorial reviews](#)[rate this item](#)

## See more by the cast &amp; directors

[Kenny Loggins](#)

## Share your thoughts

[write a review](#)[e-mail a friend about this DVD](#)

## Visit the Music Store

A Day Without Rain  
~ Enya

## Kenny Loggins Alive (1981)



**List Price: \$24.98**  
**Our Price: \$21.49**  
**You Save: \$3.49 (14%)**

210

Actual Delivery Time:

Using Standard shipping,  
 this item will be delivered  
 to you on 09/07/XX.  
 Other manners of shipping  
 are not available to you.

DVD

Rated: NR

## READY TO BUY?

**Add to Shopping Cart**  
(you can always remove it later)

(Use if you're redeeming a promotional certificate or coupon.)

**Buy now with 1-Click**  
(you can always cancel it later)

Ship to:

Work - Ship Std.

Add gift wrap or note  
Review or change your 1-Click addresses

## BUY &amp; SELL USED ITEMS

Get it for less! [Order it used](#)I have one to sell! [Sell yours here](#)

Add to Wish List

(We'll set one up for you)

[View my Wish List](#)

## Edition Details:

- Region 1 encoding (US and Canada only)
- Color
- Track Listing: 1. All Alone Tonight, 2. I Believe In Love, 3. Love Has Come Of Age, 4. Lady Luck, 5. Angry Eyes, 6. I'm Alright, 7. House Of Pooh Corner, 8. Danny's Song, 9. Junkanoo Holiday, 10. Celebrate Me Home, 11. Mr. Night, 12. This Is It, 13. Keep The Fire
- ASIN: 6304922051 [Click here for more technical details about this edition...](#)

Amazon.com Sales Rank: 3,670

212

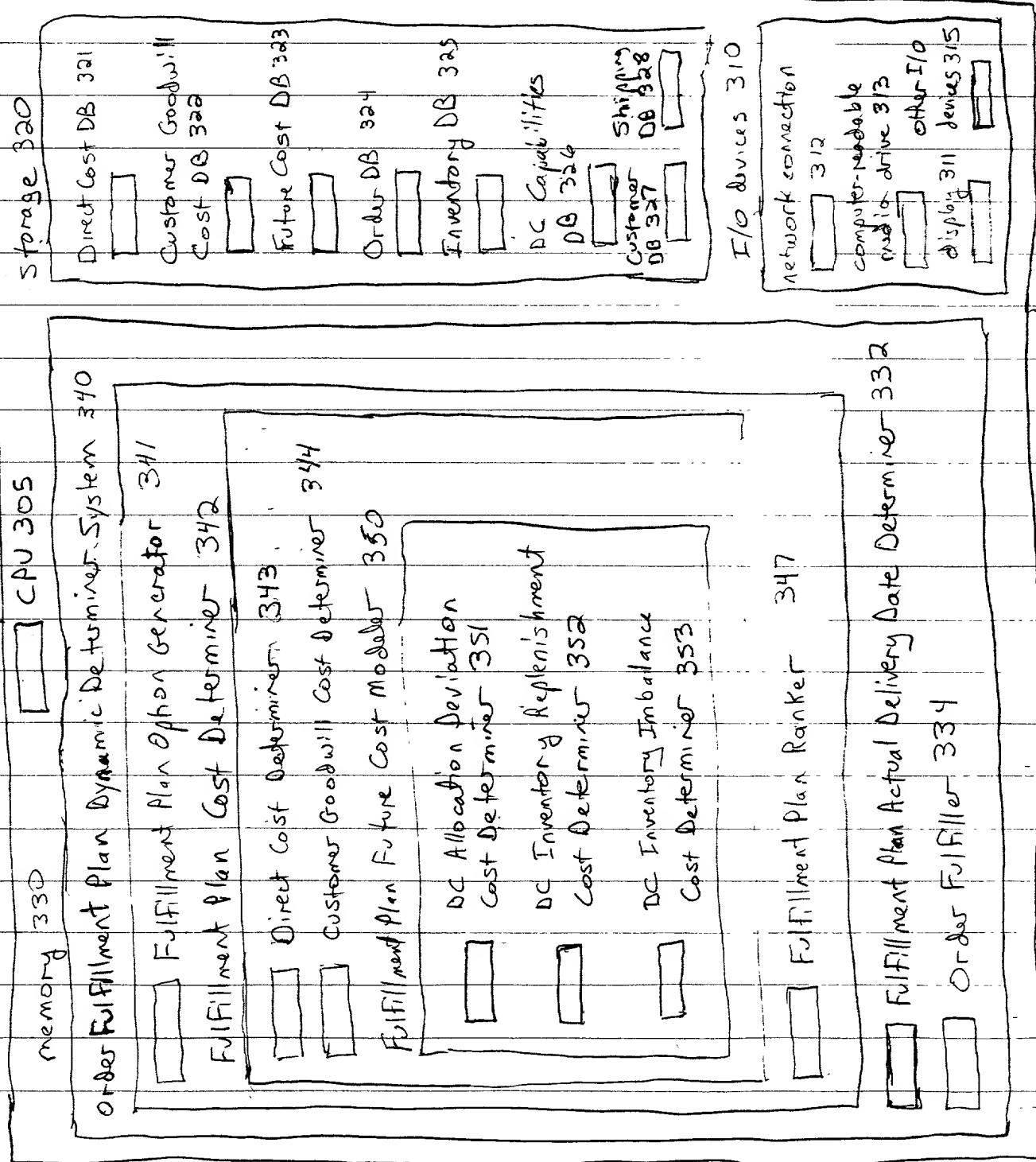
Customer 2, [rate this item](#) to get personal recommendations.

**HUGE Deals!**  
 Find hot prices and special offers

Be the first person to review this DVD!

Fig. 2E

Fig. 3



order fulfillment computer system 300

order fulfillment plan 305

memory 330

order fulfillment plan dynamic determinant system 340

fulfillment plan cost determiner 341

fulfillment plan cost determiner 342

direct cost determiner 343

customer goodwill cost determiner 344

future cost model 350

fulfillment plan

customer goodwill cost determiner

future cost model

dc allocation deviation

cost determiner

dc inventory replenishment

cost determiner

dc inventory imbalance

cost determiner

fulfillment plan ranker

fulfillment plan actual delivery date determiner 332

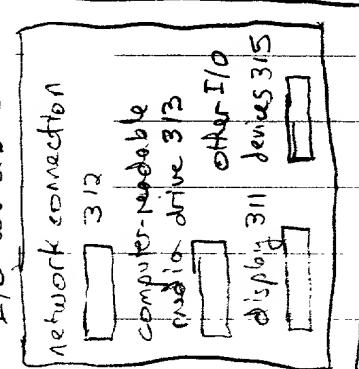
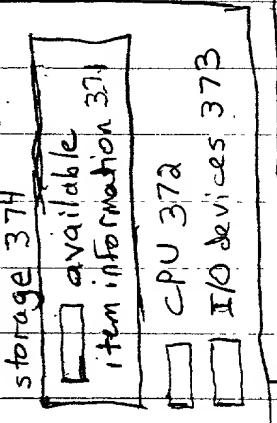
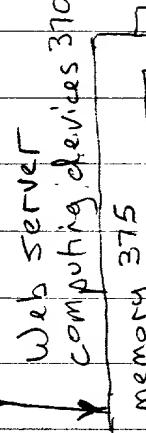
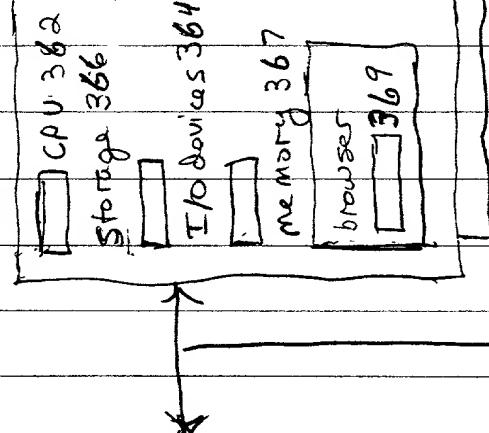
order fulfiller 334

order fulfillment computer system 330

order fulfillment plan 331

order fulfillment plan 332

client computing devices 360



Order Fulfillment Plan  
Dynamic Determiner Routine

400

Fig. 4

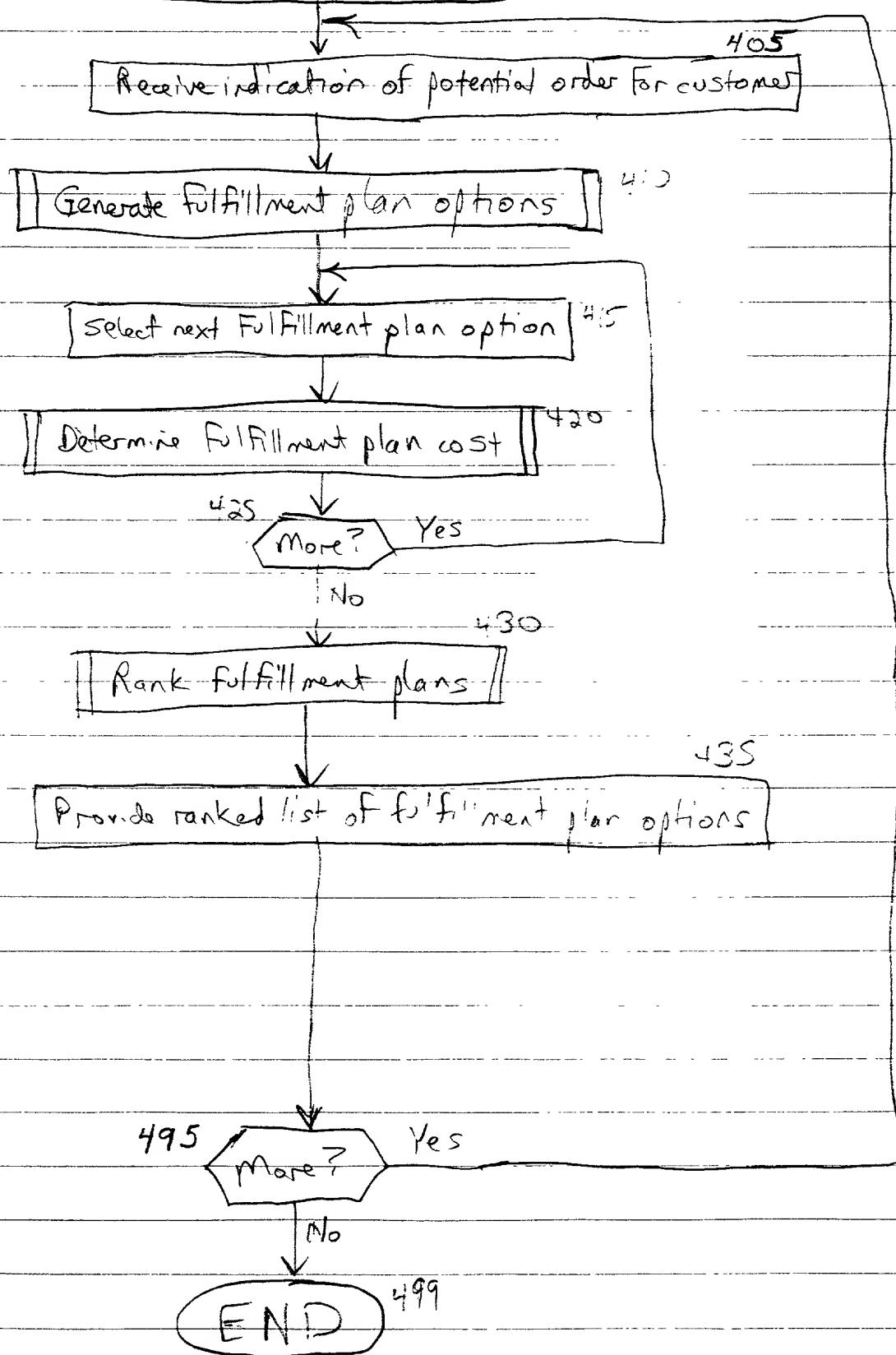
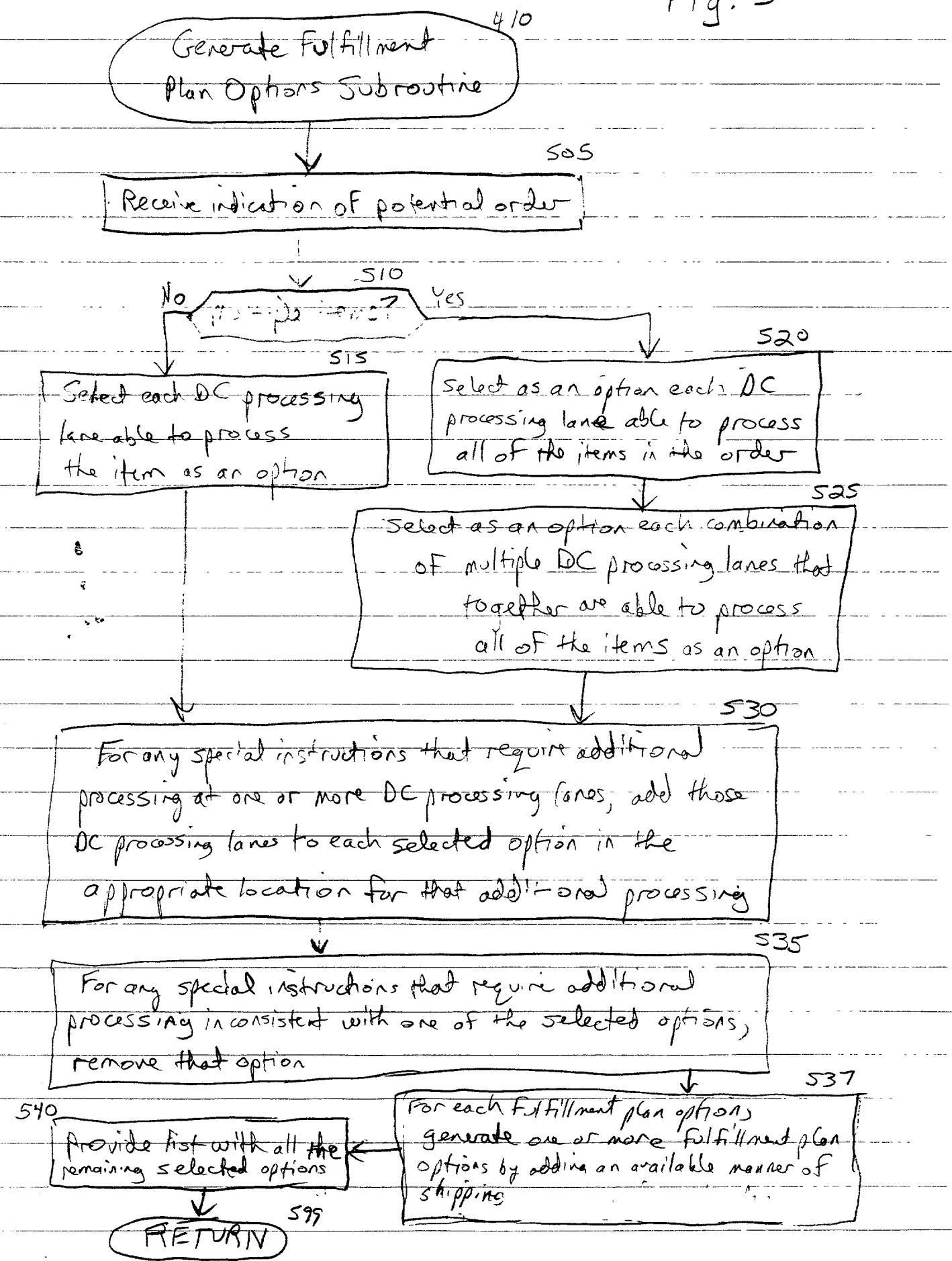
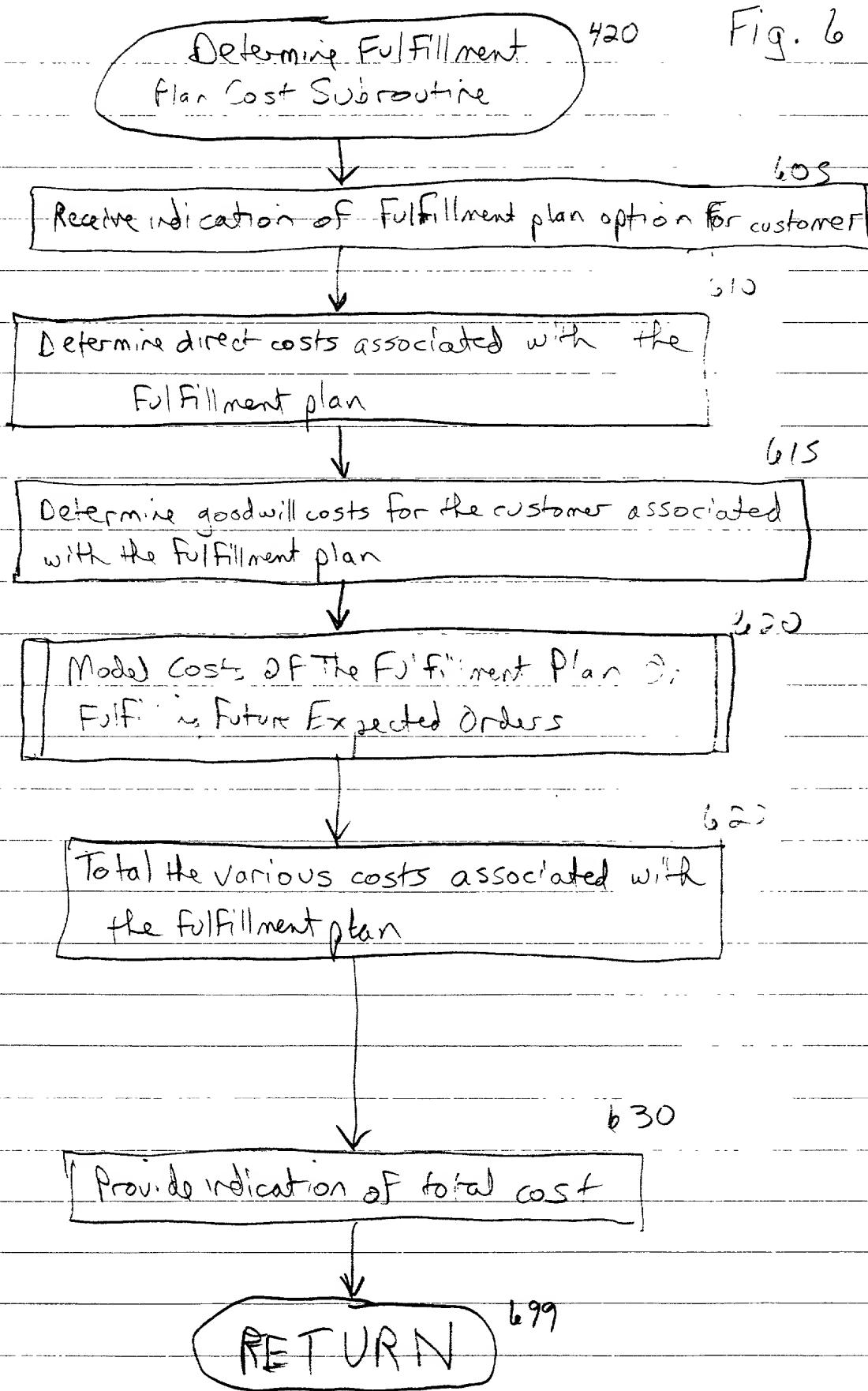


Fig. 5





620

Fig. 7

Model Fulfillment Plan Future  
Costs Subroutine



705

Receive indication of fulfillment plan option for customer



710

Assign cost to any additional deviation caused by  
fulfillment plan from optimal or expected allocation for  
processing lane(s) that will fulfill the plan



715

Assign costs of any future inventory replenishments  
that will be incurred to fulfill future orders based on  
fulfilling this order



720

Assign cost associated with any current imbalance in  
inventory of the ordered items among the DCs



730

Total the costs assigned to the fulfillment plan  
to represent impact on fulfilling future orders



735

Provide indication of totaled cost



RETURN

799

711 Assign Allocation for customer  
Cost Subroutine

Fig. 8

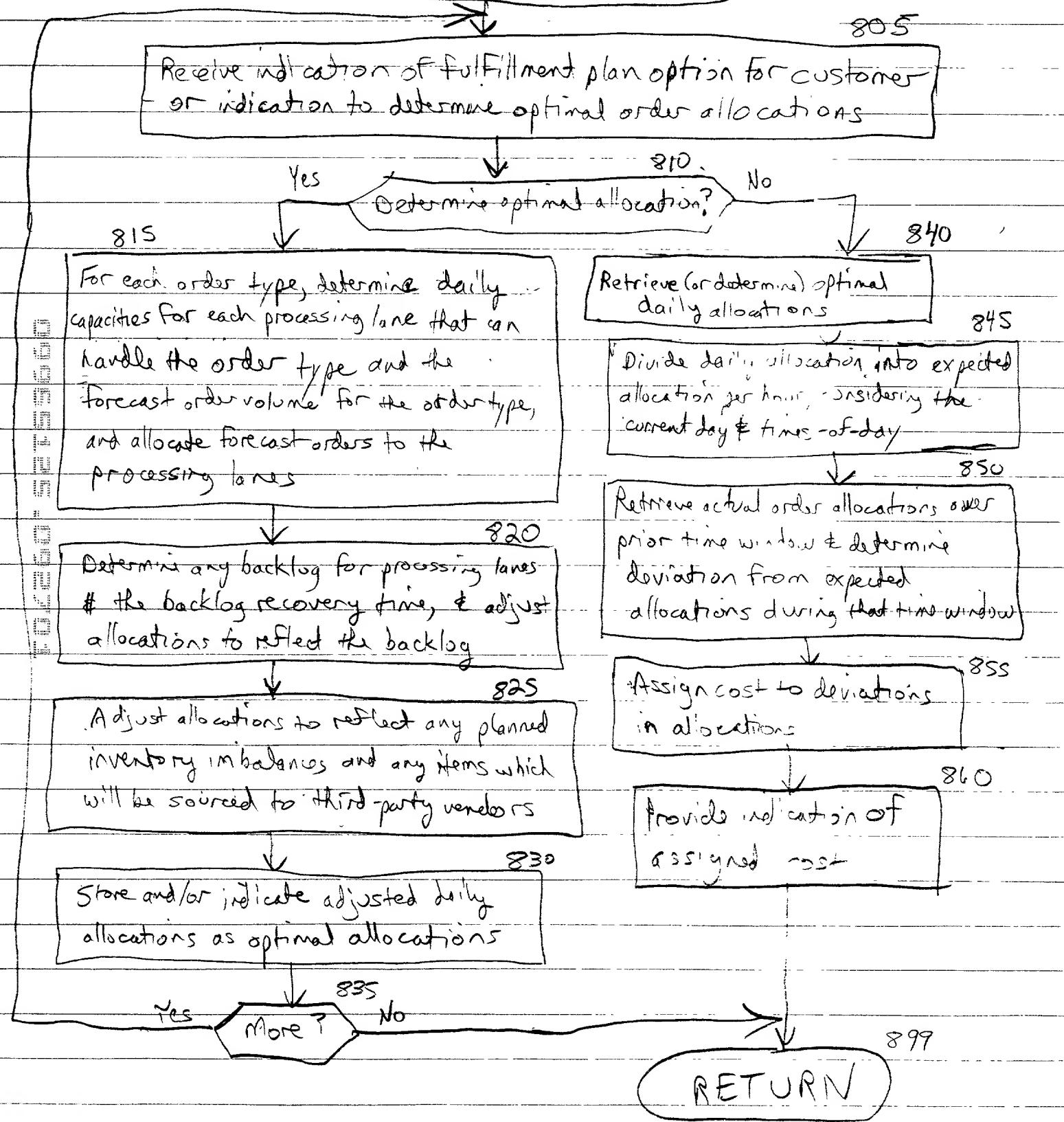


Fig. 9

## Assign Inventory Imbalance Costs Subroutine

720

Receive indication of fulfillment plan option for customer  
or indication to determine expected run rates for some or all items

Yes

Determine expected run rates?

910

%

915

For each item of interest and each DC that supplies the item, determine daily expected run rates for that item in the region typically served by that DC by analyzing historical purchase patterns and considering day-based variations, regional demand, and any other available relevant information

Retrieve (or determine) daily expected run rates for each combination of DC and item to be fulfilled from that DC for the fulfillment plan

930

935

Retrieve actual run rates over prior time window for each item in the order at the DC from which it is to be fulfilled, & determine deviation from expected run rate during that time window for that item at that DC

Store and/or indicate daily expected run rates for the items of interest and the DCs

920

Assign cost to deviations in allocations

940

Provide indication of assigned cost

945

Yes More? No

925

RETURN

999

... Assign Future Inventory  
Replenishments Costs Subroutine

1005

Receive indication of Fulfillment plan option For customer

1010

Determine default DC for the customer and/or fulfillment plan option

1015

Select next DC that is part of the fulfillment plan

1020

Default DC?

No

1025

• Determine the current inventory and projected run rate  
• set the selected DC for the item(s) to be fulfilled from that  
DC, and the time of scheduled replenishment of those items

1030

No Are one or more of the items in-stock now but  
expected to go out of stock before replenishment?

Yes

1035

For each such item, assign expected cost of  
expedited future replenishment for the ordered items and the  
expected cost of customer goodwill delivery delay for a  
future order for the ordered items to the fulfillment plan

1040

Yes

More DCs?

No

1045

Total the assigned costs for the fulfillment plan, and  
provide indication of the total assigned costs

1099

RETURN

Fig. 11

430  
Rank Fulfillment  
Plans Subroutine

1105  
Receive indications of fulfillment  
plans and of determined associated costs

1110  
Optionally receive indication of ranking criteria

No

1115  
Indicated ranking criteria?

Yes

1120  
Rank Fulfillment plans  
based on associated costs

1125  
Rank fulfillment plans  
based on indicated criteria

1190

Provide ranked list of Fulfillment options

1199

RETURN

Fig. 12

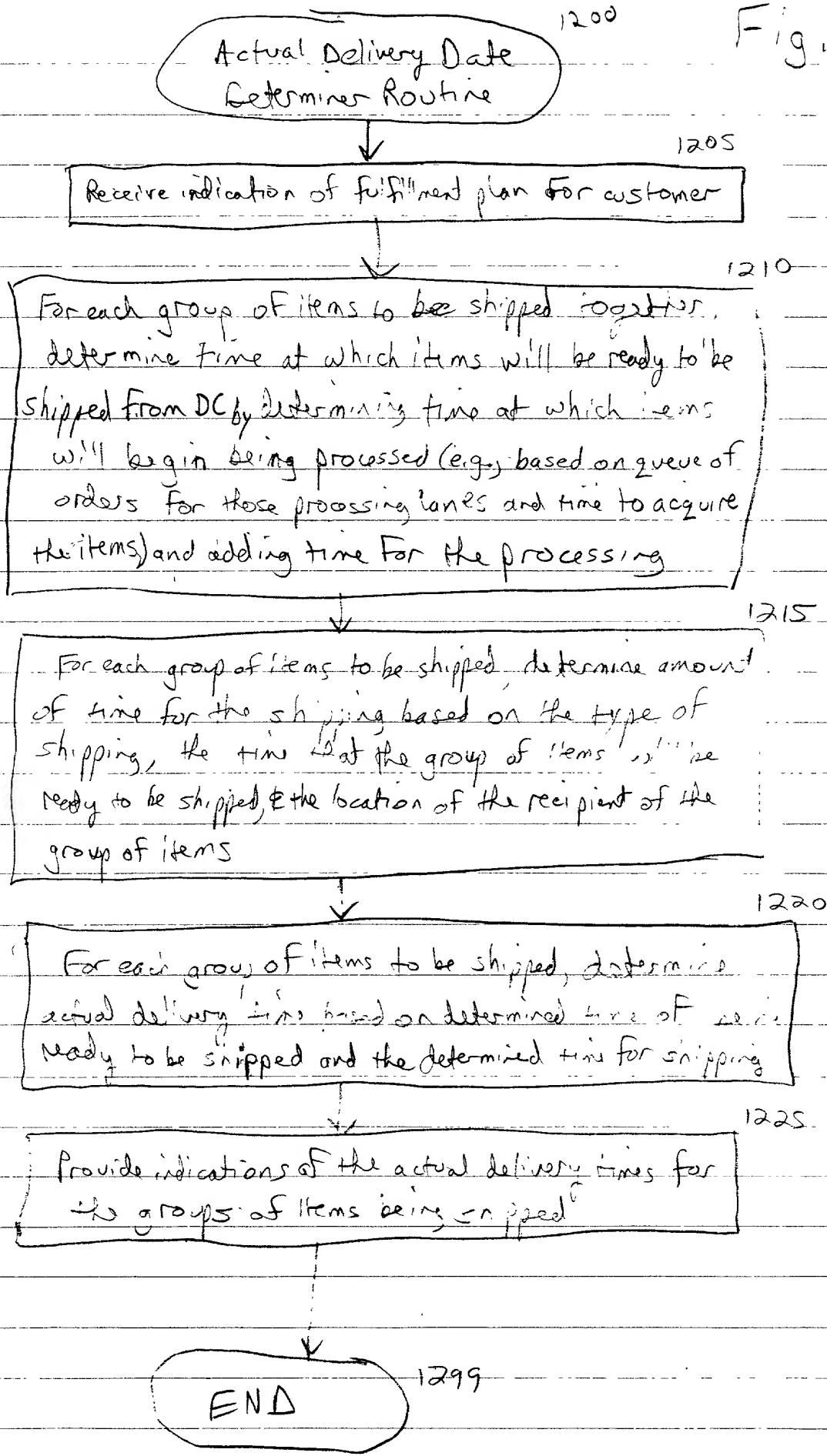


Fig. 13

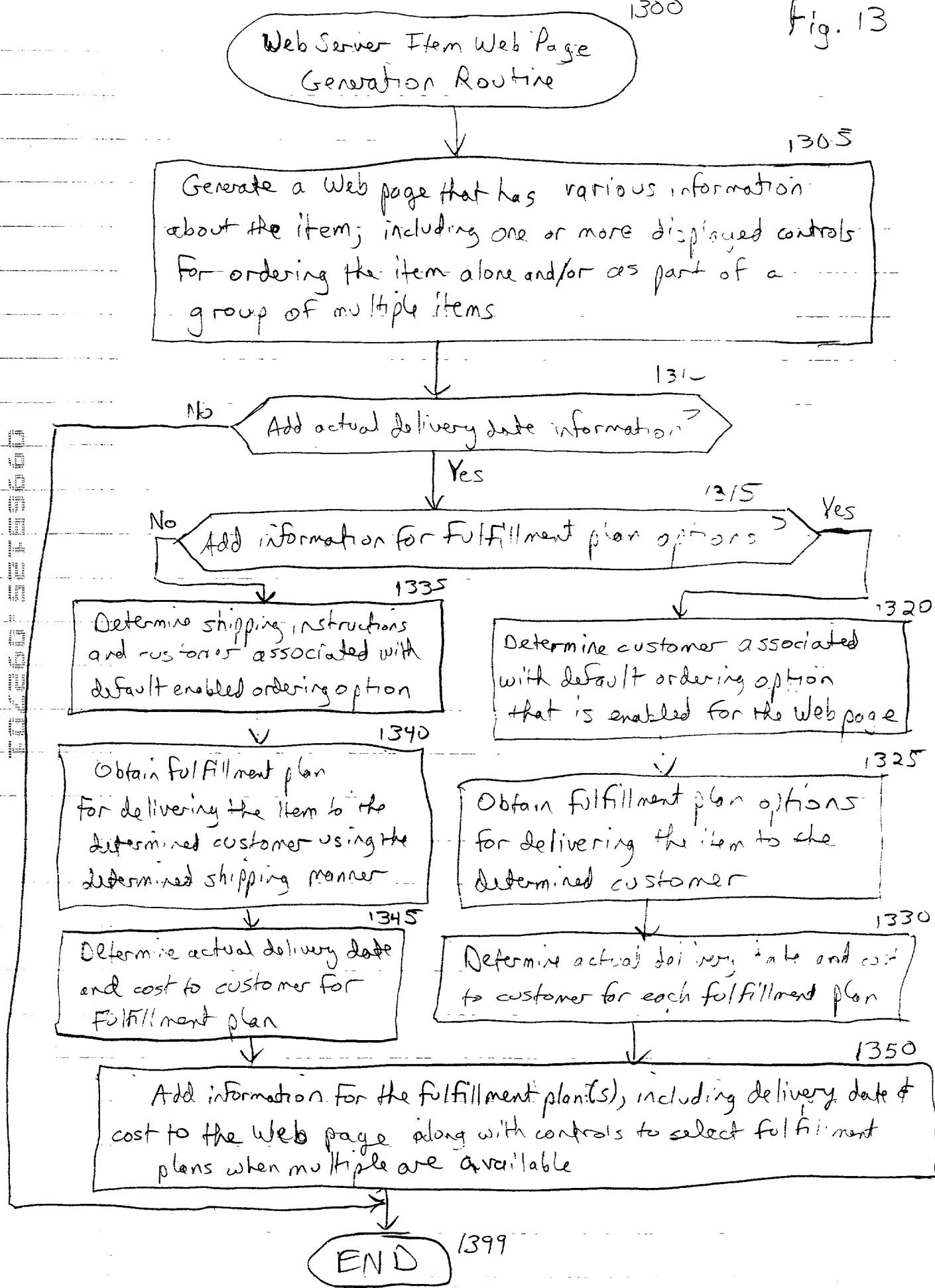
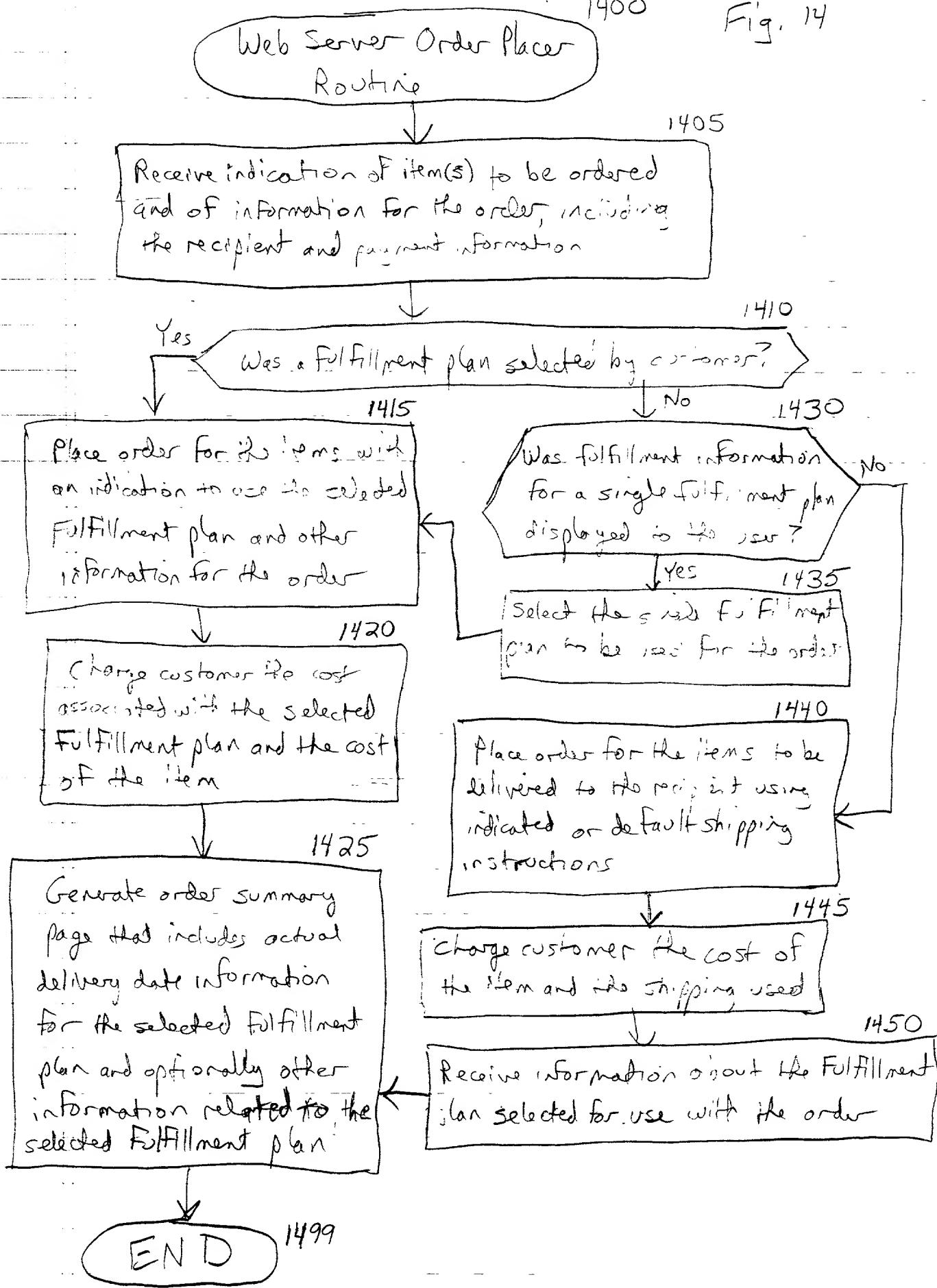


Fig. 14



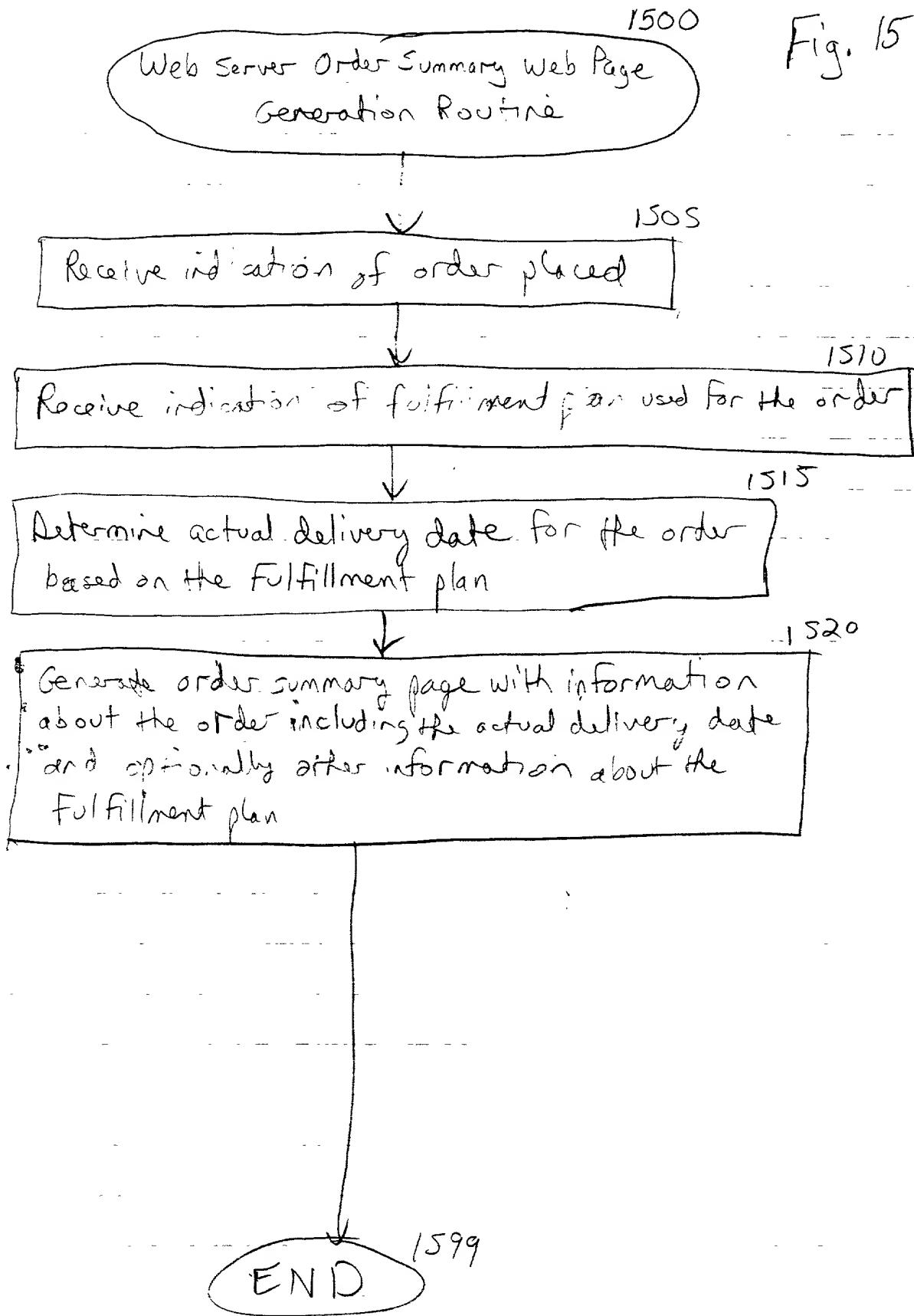


Fig. 15

Fig. 16

